

CLAIMS

What is claimed is:

5 1. A data storage system, comprising:
a frame;
operating circuitry supported by the frame; and
a power subsystem configured to power the operating circuitry, the
power subsystem including (i) a power supply configured to be supported by the
10 frame, and (ii) a power cord assembly for connecting a power supply to a power
source, the power cord assembly having:
a power cord which includes a first plug configured to
connect to the power supply, a second plug configured to connect
to the power source, and a cable interconnected between the first
15 and second plugs; and
a device configured to fasten the first plug to the frame,
the device including a body configured to attach to an installation
location of the frame and substantially hold the first plug at the
installation location of the frame when the power supply connects
20 with and disconnects from the plug, the body including:
a first end wall,
a second end wall, and
lateral walls which connect the first end
wall and the second end wall together; wherein,
25 when the body substantially holds the first plug at
the installation location of the frame and when the
body is attached to the installation location of the
frame, (i) the first end wall is configured to

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restrain the plug in a positive Z-direction relative to the frame, (ii) the second end wall is configured to restrain the first plug in a negative Z-direction relative to the frame, the negative Z-direction being opposite to the positive Z-direction along a Z-axis, and (iii) the lateral walls are configured to register the first plug relative to the frame in an X-Y plane which is perpendicular to the Z-axis.

10 2. A power cord assembly for connecting a power supply to a power source, the power cord assembly comprising:

a power cord having a first plug configured to connect to the power supply, a second plug configured to connect to the power source, and a cable interconnected between the first and second plugs; and

15 a device for fastening the first plug to a frame which is configured to support the power supply, the device including a body configured to attach to an installation location of the frame and substantially hold the first plug at the installation location of the frame when the power supply connects with and disconnects from the plug, the body including:

20 a first end wall,
a second end wall, and
lateral walls which connect the first end wall and the second end wall together; wherein, when the body substantially holds the first plug at the installation location of the frame and when the body is attached to the installation location of the frame,
25 (i) the first end wall is configured to restrain the plug in a positive Z-direction relative to the frame, (ii) the second end wall is configured to restrain the first plug in a negative Z-direction

relative to the frame, the negative Z-direction being opposite to the positive Z-direction along a Z-axis, and (iii) the lateral walls are configured to register the first plug relative to the frame in an X-Y plane which is perpendicular to the Z-axis.

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3. The power cord assembly of claim 2 wherein the body further includes:
tabs extending from the lateral walls, the tabs being configured to deflect toward the lateral walls and bend back away from the lateral walls when the body inserts through a hole defined by the frame to lock the body to the frame at the installation location.

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4. The power cord assembly of claim 2 wherein the body further includes:
a key extending from the first end wall, the key being configured to (i) enable the body to attach to the frame at the installation location when the body has a first rotational orientation along the Z-axis and inhibit the body from attaching to the frame at the installation location when the body has a second rotational orientation along the Z-axis, the second rotational orientation being offset from the first rotational orientation by substantially 180 degrees.

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5. The power cord assembly of claim 2 wherein the body includes:
a first member and a second member which are configured to allow the first plug to become encapsulated when in an open position relative to each other, and encapsulate the first plug when in a closed position relative to each other.

6. The power cord assembly of claim 5 wherein the first member defines a set of substantially 90 degree angles, and wherein the second member defines a set of angles which are substantially greater than 90 degrees to control rotational

orientation of the first plug relative to the first and second members when the first plug is encapsulated by the first and second members.

7. The power cord assembly of claim 5 wherein the first and second members define a set of open spaces adjacent the first plug when the first plug is encapsulated by the first and second members.
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8. The power cord assembly of claim 2 wherein the first end wall, the second end wall and the lateral walls are formed of a non-conductive polymer.
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9. The power cord assembly of claim 2 wherein the first end wall, the second end wall and the lateral walls form a contiguous, integrated, unitary member.
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10. A device for fastening a plug of a power cord to a frame which is configured to support a power supply, the device comprising:
 - a body configured to attach to an installation location of the frame and substantially hold the plug at the installation location of the frame when the power supply connects with and disconnects from the plug, the body including:
 - 20 a first end wall,
 - a second end wall, and
 - lateral walls which connect the first end wall and the second end wall together; wherein, when the body substantially holds the plug at the installation location of the frame and when the body is attached to the installation location of the frame, (i) the first end wall is configured to restrain the plug in a positive Z-direction relative to the frame, (ii) the second end wall is configured to restrain the plug in a negative Z-direction relative to the frame, the negative Z-direction being opposite to the
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positive Z-direction along a Z-axis, and (iii) the lateral walls are configured to register the plug relative to the frame in an X-Y plane which is perpendicular to the Z-axis.

5 11. The device of claim 10 wherein the body further includes:
tabs extending from the lateral walls, the tabs being configured to deflect toward the lateral walls and bend back away from the lateral walls when the body inserts through a hole defined by the frame to lock the body to the frame at the installation location.

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12. The device of claim 10 wherein the body further includes:
a key extending from the first end wall, the key being configured to (i) enable the body to attach to the frame at the installation location when the body has a first rotational orientation along the Z-axis and inhibit the body from attaching to the frame at the installation location when the body has a second rotational orientation along the Z-axis, the second rotational orientation being offset from the first rotational orientation by substantially 180 degrees.

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13. The device of claim 10 wherein the body includes:
a first member and a second member which are configured to allow the plug to become encapsulated when in an open position relative to each other, and encapsulate the plug when in a closed position relative to each other.

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14. The device of claim 13 wherein the first member defines a set of substantially 90 degree angles, and wherein the second member defines a set of angles which are substantially greater than 90 degrees to control rotational orientation of the plug relative to the first and second members when the plug is encapsulated by the first and second members.

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15. The device of claim 13 wherein the first and second members define a set of open spaces adjacent the plug when the plug is encapsulated by the first and second members.

5 16. The device of claim 10 wherein the first end wall, the second end wall and the lateral walls are formed of a non-conductive polymer.

17. The device of claim 10 wherein the first end wall, the second end wall and the lateral walls form a contiguous, integrated, unitary member.

10 18. A method for installing a power supply into a data storage system, the method comprising:

fastening a device to a plug of a power cord;

attaching the device to an installation location of a frame of the data

15 storage system; and
inserting a power supply into the frame of the data storage system until the power supply mates with the plug of the power cord, the device having a first end wall, a second end wall, and lateral walls which connect the first end wall and the second end wall together; wherein, when the device substantially holds

20 the plug at the installation location of the frame and when the device is attached to the installation location of the frame, (i) the first end wall is configured to restrain the plug in a positive Z-direction relative to the frame, (ii) the second end wall is configured to restrain the first plug in a negative Z-direction relative to the frame, the negative Z-direction being opposite to the positive Z-direction along a Z-axis, and (iii) the lateral walls are configured to register the first plug relative to the frame in an X-Y plane which is perpendicular to the Z-axis.

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